

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A light producing and monitoring system comprising:

a light producing device from which light is emitted with wavelengths that can range from approximately 700nm to approximately 3 microns; and

a semi-transparent sensor manufactured on a semi-transparent rigid substrate separate from the light-producing device, the semi-transparent substrate bonded to the light-producing device to position the light-producing device at a position where the semi-transparent sensor is located in front of the light producing device, at least a portion of the emitted light passes through the semi-transparent sensor and at least a portion of light is absorbed by the semi-transparent sensor, wherein the semi-transparent sensor is configured to be semi-transparent at the wavelength of the emitted light.

2. (Currently Amended) The system according to claim 1, wherein the semi-transparent substrate includes ~~[[is]]~~ one of a quartz, silica, gallium arsenide, and glass substrate.

3-4. (Canceled)

5. (Currently Amended) The system according to claim 2 wherein the light producing device and the substrate are connected together by a flip-chip process via solder bumps to define an air gap between the light producing device and the sensor.

6. (Original) The system according to claim 2 wherein the sensor

configured on the substrate includes,

- a first transparent/conductive electrode layer;
- an active sensor element configured on top of the first transparent/conductive electrode; and
- a second transparent/conductive electrode layer.

7. (Original) The system according to claim 6 wherein, the active sensor element is configured of sub-layers including,

- a first sub-layer consisting of at least one of a n+ doped amorphous silicon or an amorphous silicon-germanium compound,
- a second sub-layer consisting of at least one of intrinsic amorphous silicon or an amorphous silicon-germanium compound, and
- a third sub-layer consisting of at least one of a p+ doped amorphous silicon or an amorphous silicon-germanium compound.

8-15. (Canceled)

16. (Currently Amended) A light producing and monitoring system comprising:

- a light producing device from which light is emitted with wavelengths that can range from approximately ~~1.3 microns~~ 700nm to approximately 3 microns;
- a semi-transparent substrate;
- a semi-transparent sensor configured on a first surface of the semi-transparent substrate including:
 - a first transparent/conductive electrode layer deposited on the substrate and comprised of at least one of, Indium Tin Oxide, Tin Oxide, Zinc Oxide, or polycrystalline silicon;
 - an active sensor element [[is]] deposited on top of the first transparent/conductive layer and configured of sub-layers including:

a first sub-layer consisting of at least one of a n+ doped amorphous silicon or an amorphous silicon-germanium compound;

a second sub-layer consisting of at least one of intrinsic amorphous silicon or an amorphous silicon-germanium compound; and

a third sub-layer consisting of at least one of a p+ doped amorphous silicon or an amorphous silicon-germanium compound,

a second transparent/conductive electrode layer deposited on top of the active sensor and comprised of at least one of, Indium Tin Oxide, Tin Oxide, Zinc Oxide, or polycrystalline silicon,

a passivation/release layer located over at least the first transparent/conductive layer and the second transparent/conductive layer,

a first via through the passivation/release layer to the first transparent/conductive layer,

a second via through the passivation/release layer to the second transparent/conductive layer, and

first and second metal layers, deposited in the first and second vias, providing contacts to the first and second transparent/conductive layers respectively;

the semi-transparent sensor located in front of the light producing device, such that at least a portion of the emitted light passes through the semi-transparent sensor and at least a portion of light is absorbed by the semi-transparent sensor, and wherein the semi-transparent sensor is configured to be semi-transparent at the wavelength of the emitted light.

17-20. (Canceled)

21. (New) The system according to claim 16, wherein the substrate comprises rigid matter.

22. (New) The system according to claim 7, wherein the semi-transparent sensor further includes:

an anti-reflection coating deposited on an upper surface of the second transparent/conductive electrode layer to prevent a light reflection loss.

23. (New) The system according to claim 7, wherein the semi-transparent sensor further includes:

an anti-reflection coating deposited on a lower surface of the first transparent/conductive electrode layer to prevent a light reflection loss.

24. (New) The system according to claim 7, wherein the semi-transparent sensor further includes:

an absorption layer deposited on an upper surface of the second transparent/conductive electrode layer to prevent visible light from reaching the active sensor.

25. (New) A light producing and monitoring system comprising:

a light producing device from which light is emitted with wavelengths that can range from approximately 700nm to approximately 3 microns;

a semi-transparent substrate;

a semi-transparent sensor including:

a first anti-reflection layer deposited on the substrate,

a first transparent/conductive electrode layer deposited on top of the first anti-reflection layer,

an active sensor element deposited on top of the first transparent/conductive layer and including semiconductor layers,

a second transparent/conductive electrode layer deposited on top of the active sensor,

a second anti-reflection layer deposited on top of the second

transparent/conductive layer, and

an absorption layer deposited on top of the second anti-reflection layer to prevent visible light from reaching the active sensor;

the semi-transparent sensor located in front of the light producing device, such that at least a portion of the emitted light passes through the semi-transparent sensor and at least a portion of light is absorbed by the semi-transparent sensor, and wherein the semi-transparent sensor is configured to be semi-transparent at the wavelength of the emitted light.

26. (New) The system according to claim 25, wherein the transparency of the sensor is approximately equal to or greater than 90%.

27. (New) The system according to claim 26, wherein the transparency of the sensor is equal to about 95%.

28. (New) The system according to claim 25, wherein each anti-reflection layer includes silicon.

29. (New) The system according to claim 25, wherein a thickness of each anti-reflection layer is selected to approximately match the wavelength emitted by the light producing device.

30. (New) The system according to claim 25, wherein at least one of the first and second anti-reflection layers includes a plurality of layers.

31. (New) The system according to claim 30, wherein the anti-reflection layers include at least one of:

doped magnesium;

doped cerium; and

doped silicon.